

Biomass: Regenerable Energy—Edited by D. O. Hall and R. P. Overend. Published by John Wiley and Sons, ISBN 0-471-90919-X, 1987. 504 pages.

Biomass is now regarded as a serious renewable energy resource in both developed and developing countries. One of its major advantages is its versatility in its production, conversion technologies and products. However, this brings with it the problem that it is an interdisciplinary subject. Utilization of biomass for energy requires the knowledge of such diverse specialists as foresters, agriculturalists, chemists, engineers and biotechnologists.

Over the past 15 years a large amount of development work has gone on in the various disciplines which has now been drawn together by Hall and Overend. The emphasis is very much on the integrated nature of the subject, which is to be welcomed. The text is divided into five sections, with 22 chapters covering the resource, thermochemical conversion, bioconversion, bioenergy and development, and environmental factors. Within each section various indepth topics are covered by specialists in their field. In the first chapter Hall and Overend set the world scene on the current use of biomass energy. This is primarily regarded as a third world energy but they contrast rather well the present extent of biomass use in industrialised and developing countries. In the concluding chapter the editors express concern that the present low price of oil on the world markets is leading to very little R and D in biomass utilization for developing countries, endangering its use as a long term renewable energy source.

In any attempt to review such a wide area in under 500 pages, something obviously will be omitted. The editors have a difficult task in getting 33 authors to give similar weighting

to each aspect of their topics. However, two topics that this reviewer considers could have received more detailed treatment are liquid fuel substitution for diesel oil and biogas in developing countries. Whilst for most end uses there are a variety of energy options, that for transport is realistically to liquid fuels. Large scale production of diesel substitutes from biomass do not seem to be as well advanced as those for petrol. Given the key role diesel engines have in food production (irrigation, tractors, trucks) this is cause for concern. Reference to the potential for non-edible vegetable oils as a diesel substitute would have been welcome.

The chapter on biogas concentrates on advanced systems and given that this is a technology that is primarily associated with developing countries, it is a sad omission that no reference is made to the R and D work in this area.

On the positive side a useful inclusion is two chapters on chemicals from biomass, underlining major competition for the resource to be expected from this sector in the future.

Overall the editors and their authors, have achieved their objective of stressing the integrated nature of biomass production and utilization. It will be a valuable book to energy policy makers or those new to the field who wish to have an overview of the subject. Also scientists will find this a useful guide to understanding the contributions their colleagues from different disciplines can make. For those who wish to pursue a specific topic in more detail each chapter contains a useful list of references. This book will make a welcome addition to the bookshelves of anyone connected with renewable energy.

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